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(54) Enzymatic detergent composition.

(57) The invention relates to a detergent composition comprising lipases. By inclusion of a certain immunologically defined class of lipases in a detergent composition which comprises as detergent-active material solely an anionic synthetic detergent, and as builder a water-soluble inorganic or organic builder salt, an improved overall detergency is obtained. The builder salt is typically sodium tripolyphosphate or sodium carbonate, and the lipase is typically obtained from certain Pseudomonas or Chromobacter strains.

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prise enzymes other than lipases, such as proteases, amylases, oxidases and cellulases. In this respect it has surprisingly been found that, although the lipases of the present invention rapidly lose activity in the presence of proteases in clean model systems, under practical wash conditions in washing machines a substantial benefit is still delivered by the lipases in the presence of proteases.

The compositions of the present invention can be formulated in any desired form, such as powders, bars, pastes, liquids etc.

As said before, the compositions of the present invention show an improved overall detergency performance, particularly at lower temperatures. It is surprising that fully formulated detergent compositions incorporating the lipases of the present invention do show such an improved overall performance, when the prior art hitherto has indicated that lipases would only give some effect under particular conditions.

The invention will now further be illustrated by way of Examples.

Example 1

The following detergent compositions, with and without a lipase according to the present invention were tested in a washing test under the conditions mentioned below. The lipase used was Amano-P as heretofore described, used in a concentration of 15 LU/ml.

	% weight	
	A	B
sodium alkylbenzenesulphonate	24.0	28.0
pentasodium tripolyphosphate	15.0	2.1
alkaline sodium silicate	10.0	12.0
sodium carboxymethylcellulose	0.6	0.6
sodium sulphate	32.5	15.4
fluorescer	0.4	0.4
sodium carbonate	10.0	35.0
miscellaneous + water	to 100%	to 100%

The washing test was carried out under the following conditions:

Cotton test cloths soiled with a mixture containing inorganic pigments, protein, palm oil were soaked in a wash liquor containing 3.5 g/l of the detergent composition at 20°C, were subsequently hand washed for 1.5 minute and thereafter rinsed 3 times, each time for 2 minutes. After washing, the test cloths were soiled and washedagain. The full soiling/washing procedure was repeated four times. The water hardness was 8° GH.

The liquor/cloth ratio during soaking, washing and rinsing was 9.3 and 20 respectively. After the fourth wash the reflectance of the test cloths and the residual percentage of fatty material on the test cloths were determined. The reflectance was measured in a Reflectometer at 460 nm with a UV filter in the light pathway and the fatty matter by extracting the dried test cloths with petroleum ether, distilling off the solvent and weighing the resulting fatty matter.

The following results were obtained:

Claims

1. A detergent composition comprising as detergent-active material solely an anionic synthetic detergent, a builder and a lipase, characterised in that the builder is a water-soluble organic or inorganic builder salt and the lipase is a lipase which shows a positive immunological cross-reaction with the antibody of the lipase, producible by the microorganism Pseudomonas fluorescens IAM 1057.

2. A composition according to claim 1,

characterised in that the builder is pentasodium tripolyphosphate.

3. A composition according to claim 1,

characterised in that the builder is sodium carbonate.

4. A composition according to claim 1,

characterised in that the builder is a mixture of pentasodium tripolyphosphate and sodium carbonate.

5. A composition according to claim 1,

characterised in that the lipase also shows a positive immunological cross-reaction with the antibody of the lipase, producible by the microorganism Chromobacter viscosum var. lipolyticum NRRLB 3673 or Pseudomonas gladioli.

6. A composition according to claim 1,

characterised in that the positive immunological cross-reaction showing lipase is a lipase, producible by strains of the Pseudomonas and the Chrombacter genus.

7. A composition according to claim 1,

characterised in that the lipase is producible by strains of Pseudomonas fluorescens, of Pseudomonas fragi, of Pseudomonas nitroreductans var. lipolyticum , of Pseudomonas gladioli, and of Chromobacter viscosum.

8. A composition according to claim 1,

characterised in that it further conatins a bleaching agent.

9. A composition according to claim 1,

characterised in that it further contains a proteolytic enzyme.